

# The Clinical Impact of the Cryopreservation of Allogeneic Hematopoietic Cell Grafts on Patient Outcomes During the Onset of the COVID-19 Pandemic

A CIBMTR® (Center for International Blood and Marrow Transplantation®) study

## Highlights for Physicians:

The National Marrow Donor Program®(NMDP)/Be The Match® mandated the cryopreservation of hematopoietic cell grafts during the COVID-19 pandemic to ensure graft availability despite logistical concerns. The CIBMTR conducted a study analyzing the impact of cryopreservation on patient outcomes following hematopoietic cell transplantation (HCT) during the pandemic.

- **The study showed no difference in overall survival (OS), non-relapse mortality (NRM), acute graft-versus-host disease (GVHD), or GVHD-free, relapse-free survival (GRFS) in recipients of cryopreserved vs. fresh allogeneic HCT grafts.**
- **Though cryopreservation had no negative impact on OS, further research is needed to confirm these findings and broaden our understanding of the influence of multiple variables on outcomes.**
- **The study results suggest that while absolute differences in patient outcomes were small, fresh grafts should be preferred in most circumstances. However, cryopreservation remains a reasonable option, particularly in situations that make collection and infusion of fresh grafts less feasible.**

## Results at a Glance:

N=4042 patients receiving HCT at U.S. centers; N=1543 cryopreserved product recipients during the first 6 months of the pandemic compared to N=2499 fresh product recipients during the same 6-month period in 2019.

The study's primary objective was to compare OS between recipients of cryopreserved vs. fresh products. Secondary objectives included a comparison of disease-free survival (DFS), NRM, hematopoietic engraftment, primary and secondary graft failure, acute GVHD, chronic GVHD, GRFS, donor chimerism, receipt of a booster or second HCT, and the use of donor lymphocyte infusion (DLI).

- No statistically significant difference in 1-year post-transplant OS (hazard ratio [HR], 1.12; p=0.09), NRM (HR, 1.01; p=0.89), acute GVHD or GRFS (HR, 1.03; p=0.58) between the cryopreserved and fresh product patient groups was observed.
- Cryopreserved allogeneic grafts had lower peripheral blood stem cell and bone marrow nucleated cell doses, delayed neutrophil and platelet engraftment, and a higher risk of primary graft failure (odds ratio [OR], 1.48; p=0.01) and subsequent need for a second HCT or DLI. However, the risk of chronic GVHD was lower (HR, 0.65; p=0.001).
- DFS was lower in the cryopreserved group (HR, 1.18; p=0.006) due to a higher risk of relapse (HR, 1.21; p=0.01).

## Advancing Practice and Improving Outcomes:

NMDP/Be The Match and the CIBMTR are committed to patients thriving after transplant. Ensuring timely and safe HCT products are available for patients is of the utmost importance. Our research programs continually evaluate strategies that can improve patient outcomes and care.

You can support your patient's journey both pre- and post-transplant by:

- Discussing treatment options early with your patients.
- Examining your facility's protocols for planning donor collection and alternative sources to limit transplantation delays.
- Coordinating care between transplant centers and hematology/oncology physicians to improve communication and optimize treatment plans for your patients.

Read the study results in Blood Advances (DOI: [10.1182/bloodadvances.2023009786](https://doi.org/10.1182/bloodadvances.2023009786)).

To review more clinical research, visit [BeTheMatchClinical.org/Research](https://BeTheMatchClinical.org/Research)

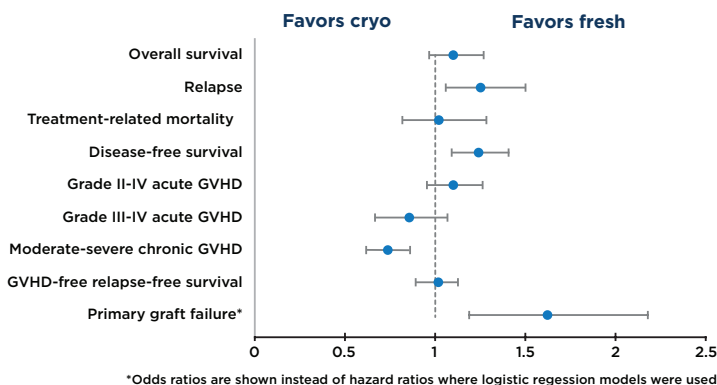


Figure: Cryopreserved vs. Fresh Product Hazard and Odds Ratios.

